

3 residues are selected from the group consisting of photosensitive and non-photosensitive or-
4 ganic materials, polymerized photoresists, paints, resins, single and multilayer organic poly-
5 mers, organo-metallic complexes, positive optical photoresist, negative optical photoresist,
6 electron-beam photoresists, X-ray photoresists, ion-beam photoresists, ion-implanted pho-
7 toresists, and other hardened photoresists and wherein said substrate is selected from the
8 group consisting of semiconductor devices and wafers, ceramic devices, liquid crystal display
9 devices, flat-panel displays, printed circuit boards, magnetic read/write heads, thin-film
10 read/write heads, said method comprising:

11 (a) subjecting said organic coatings, films, layers, or residues to a precursor
12 chemical or physical treatment;

13 (b) subjecting said organic coatings, films, layers, or residues to a vapor con-
14 sisting essentially of water-free gaseous sulfur trioxide for a [determinate] period of time, said
15 substrates being maintained at a temperature in the range from about room temperature to
16 400°C;

17 (c) subjecting said organic coatings, films, layers, or residues to a solvent
18 rinse; and

19 (d) subjecting said organic coatings, films, layers, or residues to a chemical or
20 physical post-rinse treatment.

1 6. (Once Amended) The method of Claim 1 further including:

2 (a) [treating] subjecting said [substrate] organic coatings, films, layers, or resi-
3 dues to said precursor chemical or precursor physical treatment;

4 [(b)] (a1) placing said substrate in a chamber;

5 [(c)] (a2) purging said chamber with a dry inert gas;

6 [(d)] (b) introducing said vapor consisting essentially of water-free gaseous
7 sulfur trioxide into said chamber to react with said coating, film, layer, or residue;

8 [(e)] (b1) allowing [an appropriate] said period of time to pass to permit reac-
9 tion between said sulfur trioxide and said coating; and

10 [(f)] (d) ending said reaction between said sulfur trioxide and said coating by
11 subjecting said substrate to an end-point chemical or end-point physical treatment.

8. (Once Amended) The method of Claim ³¹~~1~~ wherein said precursor chemical treatment [is] consists of exposure to a component selected from the group consisting of [exposure to] chemically active process gases, chemically inert process gases, and solvents.

9. (Once Amended) The method of Claim 8 wherein said chemically active process gases and said chemically inert process gases are selected from the group consisting of oxygen, nitrous oxide, steam, vapor phase hydrogen peroxide, nitrogen, and argon.

14. (Once Amended) The method of Claim 1 wherein said solvent rinse is simultaneously carried out in the presence of megasonic or ultrasonic energy, heat, electromagnetic radiation, [of suitable wavelength including] ultra-violet light radiation (UV), or laser energy.

15. (Once Amended) The method of Claim ³¹~~1~~ wherein said post-rinse chemical treatment [is] consists of further exposure to a component selected from the group consisting of [further exposure to] chemically active process gases or vapors, chemically inert process gases, and solvents.

16. (Once Amended) The method of Claim 15 wherein said chemically active process gases and said chemically inert process gases are selected from the group consisting of oxygen, nitrous oxide, steam, vapor phase hydrogen peroxide, nitrogen, and argon.

18. (Once Amended) The method of Claim 1 wherein said post-rinse physical treatment is selected from the group consisting of further exposure to heat, electromagnetic radiation, [of suitable wavelength including] ultra-violet light radiation (UV), laser energy, kinetic energy, high-pressure deionized water sprays, physical scrubbing, CO₂ snow processing, ultrasonic and megasonic sound energy.

20. (Once Amended) The method of Claim 1 wherein step (b) further [includes] comprises subjecting said organic coatings, films, layers, or residues to simultaneous exposure to

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3 [chemical or physical treatment] a component selected from the group consisting of other
4 chemically active process gases and vapors, chemically inert process gases, vaporized sol-
5 vents, heat, electromagnetic radiation, [of suitable wavelength including] ultra-violet light ra-
6 diation (UV), and laser energy.

21. (Once Amended) The method of Claim 20 wherein said chemically active process
gases and said chemically inert process gases are selected from the group consisting of oxy-
gen, nitrous oxide, [steam,] vapor phase hydrogen peroxide, nitrogen, and argon.

Claim 22, line 2, delete "water,".

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26. (Once Amended) The method of Claim 25 wherein said pre-rinse chemical treat-
ment [is] consists of further exposure to a component selected from the group consisting of
[further exposure to] chemically active process gases or vapors, chemically inert process
gases, and solvents.

29. (Once Amended) The method of Claim 25 wherein said pre-rinse physical treat-
ment [is] consists of further exposure to a component selected from the group consisting of
[further exposure to] heat, electromagnetic radiation, [of suitable wavelength including] ultra-
violet light radiation (UV), laser energy, kinetic energy, high-pressure deionized water sprays,
physical scrubbing, CO₂ snow processing, ultrasonic and megasonic sound energy.

Cancel Claims 2 and 24, without prejudice.

REMARKS

Claims 1, 3-23, and 25-30 are in the application. Claims 1, 6, 8, 9 and 14 are amended to overcome various rejections under 35 USC 112, as discussed in greater detail below. Claim 1 is amended to emphasize distinctions over cited art by incorporating therein the limitations of Claims 2 and 24, which are accordingly canceled.